What is claimed is:

1. A device to determine a resistive load connected to a source of alternating current ("AC") power, comprising:

a. a signal path and an AC power path, both paths connected to a device input and a device output; and

b. a processor connected to a sensing circuit including a sensing resistor that determines a current level in said AC power path, said processor indicating an off condition according to said current level on said sensing resistor.

2. The device of claim 1, further comprising a control circuit that turns off said AC power to said device output when instructed by said processor at said off condition, wherein said control circuit comprises:

a first field effect transistor and a second field effect transistor coupled to a transistor, said transistor coupled to the gates of said first and second field effect transistors.

3. The device of claim 1, further comprising a power supply circuit for supplying direct current power to said device from a source of alternating current.

4. The device of claim 3, wherein said power supply circuit comprises:

a voltage rectifier;

a voltage regulator connected to said voltage rectifier; and

a filter connected to said voltage regulator.

5. The device of claim 4, wherein said voltage rectifier includes a first diode and a second diode.

6. The device of claim 4, wherein said voltage regulator includes a diode to limit output of said filter.

7. The device of claim 6, wherein said filter includes a capacitor.

8. The device of claim 2, wherein said first and second field effect transistors include parasitic diodes.

9. The device of claim 1, further comprising an amplifier circuit coupled to said sensing resistor and to said processor to amplify the voltage over said sensing resistor.

10. The device of claim 1, wherein said current is an unbalanced current.

11. The device of claim 1, wherein said processor detects a zero crossing event when the AC voltage at the sensing resistor crosses zero.

12. The device of claim 2, further comprising a circuit to control AC power to a load, comprising:

a. a first resistor and an electronic switch connected in series to a source of direct current ("DC") power;

b. said first field effect transistor having a drain connected in series with said load and said AC power;

c. said second field effect transistor having a source connected in series with a source of said first field effect transistor, wherein the drain of said second field effect transistor is connected to ground;

d. a clamping diode having a cathode and an anode, wherein said cathode is connected to the source of each of said first and second field effect transistors, and wherein the anode of said clamping diode is connected to a gate of each of said first and second field effect transistors and to the end of said series connection of said electronic switch and said first resistor opposite to said DC power source; and

e. a second resistor connected in parallel to said clamping diode.

13. A circuit to efficiently provide a source of direct current ("DC") power to a load from a source of alternating current ("AC") power, comprising:

a. a voltage rectifier;

b. a voltage regulator connected to said voltage rectifier; and

c. a filter connected to said voltage regulator;

wherein the output of said voltage rectifier passes through said voltage regulator before being applied to said filter.

14. The circuit of claim 13, wherein said voltage rectifier includes a first diode and a second diode.

15. The circuit of claim 13, wherein said voltage regulator includes a diode that limits the output of said filter.

16. The circuit of claim 13, wherein said filter includes a capacitor.

17. The circuit of claim 14, wherein said first and second diode provide a rectified voltage to said voltage regulator.

18. The circuit of claim 13, wherein a sensing circuit is electrically coupled to said filter.

19. A circuit to control alternating current (AAC@) power to a load, comprising:

a. a first resistor and an electronic switch connected in series to a source of direct current ("DC") power;

b. a first FET transistor having a drain connected in series with said load and said AC power;

c. a second FET transistor having a source connected in series with a source of said first FET transistor, wherein the drain of said second FET transistor is connected to ground;

d. a clamping diode having a cathode and an anode, wherein said cathode is connected to the source of each of said first and second FET transistors, and wherein the anode of said clamping diode is connected to a gate of each of said first and second FET transistors and to the end of said series connection of said switch and said first resistor opposite to said DC power source; and

e. a second resistor connected in parallel to said clamping diode.

20. The circuit of claim 19, wherein said clamping diode is a Zener diode having a breakdown voltage rating lower than the gate-to-source breakdown voltage of the said first and second FETS.

21. The circuit of claim 19, wherein said switch comprises a transistor.

22. The circuit of claim 21, wherein said transistor is a PNP transistor having an emitter connected to the DC power source and a collector connected to the first lead of said first resistor.

23. A control circuit to control alternating current (AAC@) power to a load, comprising:

a. a first field effect transistor and a second field effect transistor connected in series with said load, said first and second field effect transistors having gates; and

b. a switch connected to a source of direct current (ADC@) power, said switch including a transistor that applies voltage to said gates of said first and second field effect transistors during an on condition.

24. The control circuit of claim 23, further comprising a first resistor having two ends, wherein the first end of said first resistor is connected to said switch and the second end is connected to said first and second field effect transistors, for pulling said gates of said first and second field effect transistors during an off condition.

25. A circuit to sense positive and negative over-voltage, comprising:

a. a first transistor connected to a sense resistor having a current;

b. a second transistor connected to said sense resistor; and

c. a first voltage reference connected to said first transistor and a second voltage reference connected to said second transistor, said voltage references providing a sense setting to said first and second transistors, wherein said first transistor is configured to have an on condition when said input voltage is above a first predetermined level as sensed by said current in said sense resistor, and said second transistor having an on condition when said input voltage is below a second predetermined level as sensed by said current in said sense resistor.

26. A method for determining when a resistive load is connected to a source of alternating current ("AC") power, comprising:

a. carrying a signal through a signal path and said AC power through an AC power path, both paths connected to a device input and a device output;

b. determining a current level in said AC power path with a processor connected to a sensing circuit including a sensing resistor;

c. indicating an off condition according to said current level on said sensing resistor; and

d. turning off said AC power to said device output with a power switch when instructed by said processor during said off condition.

27. The method of claim 26, further comprising a step of using a first field effect transistor and a second field effect transistor coupled to said switch to turn off said AC power.

28. The method of claim 26, further comprising converting said current level from an analog value to a digital value using said processor.

29. The method of claim 26, further comprising turning off said AC power to said device output using said power switch when detecting a short circuit.

30. The method of claim 26, further comprising turning off said AC power to said device output using said power switch when detecting a positive over-voltage.

31. The method of claim 26, further comprising turning off said AC power to said device output using said power switch when detecting a negative over-voltage.